



EVERY DROP

Water supply activity guide

TENNESSEE SCIENCE STANDARDS (2018)

K.ESS3.3. Earth & Human Activity. Communicate solutions that will reduce the impact from humans on land, water, air, and other living things in the local environment.

2.ESS2.4. Earth's Systems. Use information obtained from reliable sources to explain that water is found in the ocean, rivers, streams, lakes, and ponds, and may be solid or liquid.

TIME

50 minutes (one period). Given limited time, skip having students volunteer. Simply point out that the bucket represents all water on earth. Drop one drop of water in the hands of several students to illustrate all of the fresh surface water on earth is in each drop.

MATERIALS

- 1x 5-gallon bucket, full of water
- 2x 2-cup clear measuring cups
- 2x eyedroppers

PROCEDURE

Explain to students that the water in the 5-gallon bucket represents all the water on Earth. Ask them to name the kinds of water that exist in, on or around Earth. They should be able to name rivers, lakes, oceans, clouds or water vapor, ice caps, groundwater, water held in soil, and water held in plants and animals. Write places on a dry erase or smart board as they think of them. Provide hints so that all types of water are mentioned.

Ask two students to come up and help with the demonstration. Ask one of them to remove two cups of water from the bucket, using a measuring cup. Have the student hold that amount so everyone in the class can see it.

Ask the class: What does the water in the cup represent?

- Answer: Freshwater.

Ask the class: What does the water in the bucket represent?

- Answer: Saltwater. Explain that the saltwater is not usable by humans because drinking it would make us very sick.

Set aside the bucket. Ask the first student to pour 1/2 cup of water into a measuring cup held by another student.

Ask the class: What does the remaining water in the two-cup measuring cup represent?

- Answer: Polar ice caps. Explain that this water is unavailable for our use because it is frozen. (Students may say here that the ice caps are melting! This is true, but mention that they are melting into saltwater).

Set this cup aside. The first student can return to their seat.

Ask the class: What does the 1/2 cup of water represent?

- Answer: Groundwater, surface water (e.g. lakes, rivers, wetlands), and water vapor in the atmosphere.

Have the class guess how much water should be removed from the cup to represent only the surface water on Earth. After a few guesses, pull out the eyedropper and draw some water into it. Place one drop of water into the hand of a few students. Explain that one drop of water out of a whole 5-gallon bucket represents the water that we see and can touch every day, and that we have the power to keep clean!

Allow the class to think about this for a minute. Then explain that the total amount of water on the planet is not going to change. Even though water moves around on the planet and changes from one kind to another, we will never have any more than we have right now.

DISCUSSION

Spend some time discussing the activity with the class. Ask some of the following questions to start the discussion:

- Would you call water a scarce or abundant resource? Why?
- Were you surprised at how little water is available for human use?
- What do we need/use water for?
- What is the main cause of the increased demand for freshwater?
- The number of people who need to use Earth's freshwater keeps increasing. If the amount of freshwater cannot change, but there are more people who need it, what does that mean? What might happen?
- Can people and animals live without clean freshwater?

Have the students work in groups to come up with one or two things they can do every day to help keep the one drop of water safe and clean. Have each group share their ideas with the class.

SOURCE

Water Supply Activity, "Chapter One: Watersheds," *Hands On Save Our Streams*, The Izaak Walton League of America, July 1995.